

Space Weather Forecast

Issued on Monday, 10 July 2023 at 01:27 Local

This forecast provides a four day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales <https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales>

Space Weather Forecast Headline: Chance of R1/R2 Radio Blackouts throughout. Chance of Minor geomagnetic storms Day 4 (13 July).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity is Low, with isolated Common-class flares observed in the past 24 hours. Twelve sunspot regions cover the visible disc. The region near north centre disc is the most magnetically complex region, with magnetic complexity visible within the trailing spots. A region in the southeast is the largest region with a notably large spot evident. Two new sunspot regions in the southwest have developed rapidly in recent hours. The other regions appear mostly small and simple or stable at this stage. No Earth-directed Coronal Mass Ejections (CMEs) have been observed in available imagery during the past 24 hours.

Solar Wind / Geomagnetic Activity: The solar wind declined a little and is now at Low levels. Total magnetic field strength has been weak throughout, with the north-south component also varying weakly. Geomagnetic activity has been Quiet.

Energetic Particles / Solar Radiation: No solar radiation storms were observed.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to moderate solar activity is forecast through the period with a slight chance (5%) of an isolated strong flare, and currently the greatest risk of this comes from the sunspot region located in the northwest.

Solar Wind / Geomagnetic Activity: No Earth directed CMEs are currently forecast. The solar wind is likely to be at Low levels for the first three days of this guidance period with perhaps some enhancements to slightly elevated levels. During Day 4 (13 July) a coronal hole fast wind is forecast to arrive with elevated solar winds probable. Geomagnetic activity is forecast to be Quiet to Unsettled through much of the period. However there is an increased risk of Active or minor geomagnetic storms during Day 4.

Energetic Particles / Solar Radiation: Solar radiation has a slight chance of reaching the S1/Minor Storm threshold through the period, should an isolated large flare occur.

Geomagnetic Storms:

Geo-Magnetic Storm	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Minor or Moderate	G1 to G2	No	1	1	1	30
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X Ray Flares:

X Ray Flares	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability			(%)	(%)	(%)	(%)
Active	R1-R2 M Class	No	50	50	60	60
Very Active	R3 to R5 X	No	10	10	20	20

Solar Radiation Storms - (High Energy Protons):

Radiation Storms	Level (cm ⁻² sr ⁻¹ s ⁻¹)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC)	Day 2 (00-24 UTC)	Day 3 (00-24 UTC)	Day 4 (00-24 UTC)
Probability (Exceedance)			(%)	(%)	(%)	(%)
Active	≥ S1	No	5	5	5	5
Very Active	≥ S3 *	No	1	1	1	1

* S3 ≥ 10 MeV ≥ 1000 pfu and / or ≥ 50 MeV ≥ 10 pfu. (pfu = cm⁻²sr⁻¹s⁻¹)